Bhavesh Shrimali

Contact Information

B150, Newmark Civil Engineering Laboratory
University of Illinois Urbana-Champaign

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Research Interests

homogenization; applied math; numerical analysis; high performance computing; variational models of fracture; finite element method

Education

University of Illinois Urbana-Champaign **4.0/4.0**

MS and Ph.D., Structural Engineering and Mechanics, 2015-present
Advisor: Prof. Oscar Lopez-Pamies

Minor: Computational Science and Engineering, 2016-present

Indian Institute of Technology Guwahati **9.22/10.00**

B.Tech, Civil Engineering, 2011-15
Ranked 1st *in the department*

Publications

[J1] **Bhavesh Shrimali** and Victor Lefèvre and Oscar Lopez-Pamies. A simple explicit homogenization solution for the macroscopic elastic response of isotropic porous elastomers. *Journal of the Mechanics and Physics of Solids*, 122:364 – 380, 2019 [**pdf**]

Awards & Achievements

- **Institute silver medal**, IIT Guwahati: Ranked first in Civil Engineering Department ['15]
- **DAAD-WISE fellowship**: Awarded to 150 students from all over India to pursue a summer research internship in Germany ['14]
- **IET India Scholarship**: Awarded to about 170 students from select universities ['14]
- **HKUST IIP**: Selected for the International Internship Program (IIP) to pursue a summer research internship at HKUST [13]
- **OPJEMS**: Selected among the top 50 students nationwide for the prestigious scholarship ['13]
- **Dhrishti 2012**, India: Among the *top 5* teams in India based on proposed novel engineering solutions to renewable energy generation ['12]
- **Institute Merit Scholarship**, IIT Guwahati: Awarded annually to the top ranked student in each department based on year round academic performance ['12-'15]
- **Indian National Olympiads**: Selected for the national rounds of olympiads in Mathematics, Physics and Astronomy ['11]
- **KVPY Fellow**: Ranked among 209 students from all over the country ['10]
- **NTSE Scholar**: Ranked 324/1000 in the country ['07]

Teaching

- **CEE 598: Constitutive Modeling of Engineering Materials** [*Spring '19*]
- **CEE 570: Finite Element Methods** [*Spring '18*]
- **CEE 471: Structural Mechanics***: List of teachers ranked excellent by UIUC. [*Fall '17, '18, '19*]
- **CS 357: Numerical Methods** [*Spring '17*]
- **CS 125: Introduction to Computer Science** [*Spring '16, Fall '16*]

Technical Skills

Languages: Python, C, C++, Fortran

FE Codes: FEniCS, Firedrake, Abaqus

Miscellaneous: Bash, Git, PyCUDA, pybind11

Research Internships

Technische Universität Braunschweig [*Summer '14*]
Advisor: Prof. Dr. Klaus Thiele
I worked on linear perturbation analysis of a cable stayed bridge to identify the dominant eigen-modes. Subsequently, based on a FE analysis of the galloping cables, I proposed an optimum location of an eddy current damper. The entire set of calculations were done in FE simulation program ANSYS.

Hong Kong University of Science and Technology [*Summer '13*]
Advisor: Prof. Christopher K Y Leung
I worked on tuning the proportion of elastomeric and steel fibres in high performance concrete to enhance the post peak softening response. I also worked on validating a FE analysis of a notched beam subject to 3-point bending with the in situ experiments.

Courses

Fast Algorithms and Integral Equations, Multigrid Methods, Nonlinear Finite Elements, Generalized Finite Element Method, Numerical methods for PDEs, Computational Inelasticity